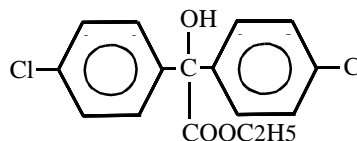


CHLOROBENZILATE

Chlorobenzilate is a federal hazardous air pollutant and was identified as a toxic air contaminant in April 1993 under AB 2728.

CAS Registry Number: 510-15-6

Molecular Formula: $C_{16}H_{14}Cl_2O_3$



Chlorobenzilate is a viscous liquid. The commercial product is yellow. It is soluble in most organic solvents, slightly soluble in water, and incompatible with lime (Merck, 1989).

Physical Properties of Chlorobenzilate

Synonyms: 4-chloro- α -(4-chlorophenyl)- α -hydroxybenzeneacetic acid ethyl ester;
4,4'-dichlorobenzilic acid ethyl ester; ethyl 4-4'-dichlorobenzilate;
ethyl 2-hydroxy-2,2-bis(4-chlorophenyl)acetate; Acaraben; Akar; Foxbex

Molecular Weight:	325.20
Boiling Point:	415 °C
Melting Point:	35 - 37 °C
Density/Specific Gravity:	1.2816 at 20/4 °C (water=1)
Vapor Pressure:	2.2×10^{-6} mm Hg at 20 °C
Log Octanol/Water Partition Coefficient:	4.36 (estimated)
Water Solubility:	13 mg at 20 °C
Conversion Factor:	1 ppm = 13.3 mg/m ³

(Howard, 1990; HSDB, 1991; Merck, 1989; U.S. EPA, 1994a)

SOURCES AND EMISSIONS

A. Sources

The primary stationary sources that have reported emissions of chlorobenzilate are electrical services (ARB, 1997b).

Chlorobenzilate was registered for use as a pesticide; however as of February 8, 1989, it is no longer registered for pesticidal use in California (DPR, 1996).

B. Emissions

The total emissions of chlorobenzilate from stationary sources in California are estimated to be at least 4,000 pounds based on data obtained from the Air Toxics “Hot Spots” Program (AB 2588) (ARB, 1997b).

C. Natural Occurrence

No information about the natural occurrence of chlorobenzilate was found in the readily-available literature.

AMBIENT CONCENTRATIONS

No Air Resources Board data exist for ambient measurements of chlorobenzilate.

INDOOR SOURCES AND CONCENTRATIONS

No information about the indoor sources and concentrations of chlorobenzilate was found in the readily-available literature.

ATMOSPHERIC PERSISTENCE

Based on its vapor pressure, chlorobenzilate will be distributed between the gas and particle phases in the atmosphere. In the gas phase, chlorobenzilate will be susceptible to reaction with hydroxyl radicals. The atmospheric half-life, due to its reaction with hydroxyl radicals, is estimated to be about 7 days. Chlorobenzilate may also be removed from the atmosphere by wet and dry deposition in both gas and particle phases (Atkinson, 1995).

AB 2588 RISK ASSESSMENT INFORMATION

Although chlorobenzilate is reported as being emitted in California from stationary sources, no health values (cancer or non-cancer) are listed in the California Air Pollution Control Officers Association Air Toxics “Hot Spots” Program Revised 1992 Risk Assessment Guidelines for use in risk assessments (CAPCOA, 1993).

HEALTH EFFECTS

Probable routes of human exposure to chlorobenzilate are inhalation, ingestion, and dermal contact (U.S. EPA, 1994a).

Non-Cancer: Little information is available on the health effects of chlorobenzilate. The United States Environmental Protection Agency (U.S. EPA) has not established a Reference

Concentration (RfC) for chlorobenzilate. The U.S. EPA has set a Reference Dose (RfD) for chlorobenzilate, of 0.02 milligrams per kilogram per day based on decreased stool quantity, food consumption, body weight gains, and hyperirritability in rabbits. The U.S. EPA estimates that consumption of this dose or less, over a lifetime, would not likely result in the occurrence of chronic, non-cancer effects (U.S. EPA, 1994a).

Animal reproductive studies have reported injury to the sperm and atrophy of the testes in rats exposed to chlorobenzilate in their diet. In one study, teratogenic effects were not observed in the offspring of rats exposed to chlorobenzilate in the diet (U.S. EPA, 1994a).

Cancer: There is no information available on the carcinogenic effects of chlorobenzilate on humans. In animal studies, orally exposed mice were found to have increased incidences of liver tumors. The U.S. EPA has classified chlorobenzilate as Group B2: Probable human carcinogen (U.S. EPA, 1994a). The International Agency for Research on Cancer has classified chlorobenzilate as Group 3: Not classifiable based on no adequate data in humans, and limited evidence in orally exposed mice and rats (IARC, 1987a).

